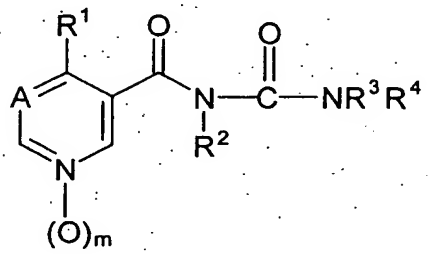
Claims: BCS 03-1027

1. A process for preparing N-disubstituted N'-[4-haloalkylpyri(mi)dinyl]carbonyl ureas of the formula (I),



(I)

where

A is CH or N;

R^1 is $(C_1\text{-}C_4)$-haloalkyl;

R^2 is H or M;

M is an organic or inorganic cation;

R^3 is $(C_1\text{-}C_8)$-alkyl, $(C_3\text{-}C_6)$-alkenyl, $(C_3\text{-}C_6)$-alkynyl, $(C_1\text{-}C_8)$-alkoxy, $(C_3\text{-}C_6)$-alkenyloxy, $(C_3\text{-}C_6)$-alkynyloxy, $(C_3\text{-}C_8)$-cycloalkyl, $(C_3\text{-}C_8)$-cycloalkyl-$(C_1\text{-}C_6)$-alkyl, O-CH_2-$(C_3\text{-}C_8)$-cycloalkyl, where the last nine groups mentioned are unsubstituted or substituted by one or more R^5 radicals, or is aryl, heterocyclyl, aryloxy, heterocyclyloxy, -CH_2-aryl, -O-CH_2-aryl, -CH_2-heterocyclyl, -O-CH_2-heterocyclyl, where the last eight radicals mentioned are unsubstituted or substituted by one or more R^6 radicals;

R^4 is $(C_1\text{-}C_8)$-alkyl, $(C_3\text{-}C_6)$-alkenyl, $(C_3\text{-}C_6)$-alkynyl, $(C_3\text{-}C_8)$-cycloalkyl, $(C_3\text{-}C_8)$-cycloalkyl-$(C_1\text{-}C_6)$-alkyl, where the last five groups mentioned are unsubstituted or substituted by one or more R^5 radicals, or is aryl, heterocyclyl, -CH_2-aryl, -CH_2-heterocyclyl, where the last four groups mentioned are unsubstituted or substituted by one or more R^6 radicals;

or

R^3 and R^4 together with the adjacent N atom form a 3 - 8 membered saturated, unsaturated or aromatic heterocyclic ring which optionally comprises up to three further heteroatoms from the group of N, S and O and which is unsubstituted or substituted by one or more (C_1-C_6)-alkyl, (C_1-C_6)-haloalkyl or R^5 radicals;

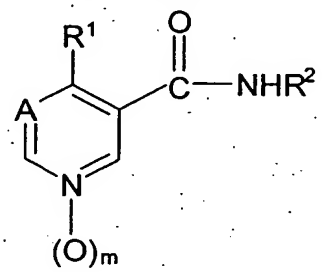
R^5 is halogen, (C_1-C_6)-alkoxy, (C_1-C_6)-haloalkoxy, $S(O)_n-(C_1-C_6)$-alkyl, $S(O)_n-(C_1-C_6)$-haloalkyl, CN, $COO(C_1-C_6)$-alkyl, NO_2, $N[(C_1-C_6)\text{-alkyl}]_2$, phenoxy, unsubstituted or substituted by one or more radicals from the group of (C_1-C_6)-alkyl, (C_1-C_6)-haloalkyl and halogen;

R^6 is R^5, (C_1-C_6)-alkyl, (C_1-C_6)-haloalkyl;

m is 0 or 1, and

n is 0, 1 or 2,

by reacting a 4-haloalkylpyri(mi)dinylcarboxamide of the formula (II),



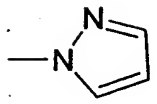
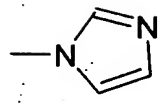
(II)

in which A, R^1, R^2 and m have the meaning indicated for formula (I),

in the presence of a base with a compound of the formula (III),

(III)

in which

X is  ,  or —O—R^7;

R^7 is unsubstituted or mono- or polyhalo, preferably F and/or Cl, -substituted (C_1-C_6)-alkyl or (C_3-C_6)-alkenyl, phenyl or benzyl, particularly preferably CH_3, C_2H_5, i-C_3H_7, -CH_2-CH=CH_2, -CH_2-CF_3, CH_2-CF_2-CF_2H, CCl_3, phenyl or benzyl, in particular CH_3 or C_2H_5.

R^3, R^4 have the meanings indicated for formula (I).

2. The process as claimed in claim 1, where the symbols and indices in the formulae (I) have the following meanings:

A is CH;

R^1 is CF_3;

R^2 is M or H;

M is Li, Na, K, Cs, $Ca^{2+}/2$, N[(C_1-C_4)-Alkyl]$_4$, such as N(CH_3)$_4$, N(C_2H_5)$_4$;

R^3 is (C_1-C_8)-alkyl, (C_3-C_6)-alkenyl, (C_3-C_6)-alkynyl, (C_1-C_8)-alkoxy, (C_3-C_6)-alkenyloxy, (C_3-C_6)-alkynyloxy, (C_3-C_8)-cycloalkyl, (C_3-C_8)-cycloalkyl-(C_1-C_6)-alkyl, O-CH_2-(C_3-C_8)-cycloalkyl, where the last nine groups mentioned are unsubstituted or substituted by one or more R^5 radicals, or is aryl, heterocyclyl, aryloxy, heterocyclyloxy, -CH_2-Aryl, -O-CH_2-aryl, -CH_2-heterocyclyl, -O-CH_2-heterocyclyl, where the last eight groups mentioned are unsubstituted or substituted by one or more R^6 radicals;

R^4 is (C_1-C_8)-alkyl, (C_3-C_6)-alkenyl, (C_3-C_6)-alkynyl, (C_3-C_8)-cycloalkyl, (C_3-C_8)-cycloalkyl-(C_1-C_6), (C_1-C_6)-alkyl, where the last five groups mentioned are unsubstituted or substituted by one or more R^5 radicals,

or is aryl, heterocyclyl, -CH_2-aryl, -CH_2-heterocyclyl, where the last four groups mentioned are unsubstituted or substituted by one or more R^6 radicals;

R^5 is halogen, (C_1-C_6)-alkoxy or (C_1-C_6)-haloalkoxy;

R^6 is R^5, (C_1-C_6)-alkyl, (C_1-C_6)-haloalkyl;

m is 0;

n is 0, 1 or 2.

3. The process as claimed in claim 1 or 2, where the symbols in the formula (III) have the following meanings:

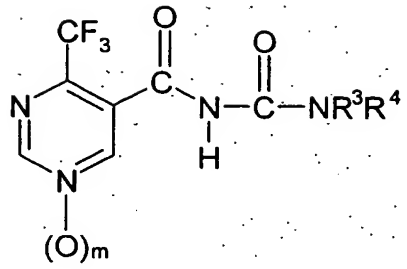
X is O-R^7 and

R^7 is unsubstituted or mono- or polyhalo, preferably F and/or Cl, -substituted (C_1-C_6)-alkyl or (C_3-C_6)-alkenyl, phenyl or benzyl.

4. The process as claimed in one or more of claims 1 to 3, where the molar ratio of amide of the formula (II) to compound (III) is 1:1 - 1.1.

5. The process as claimed in one or more of claims 1 to 4, where from 1 to 1.1 equivalents (based on the amide of the formula (II) of a base from the group of the hydroxides and (C_1-C_4)-alcoholates of the alkali metal and alkaline earth metals, alkyllithium compounds, metal hydrides, carbonates and acetates of the alkali metals and alkaline earth metal, tertiary amines having C_1-C_4-alkyl radicals and sterically hindered nitrogen bases are employed.

6. A compound of the formula (Ia),

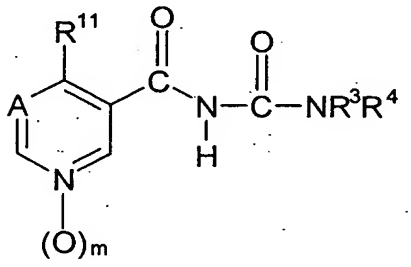


(Ia)

where

R^3, R^4 and m have the meanings indicated in claim 1 for formula (I).

7. A compound of the formula (Ib),



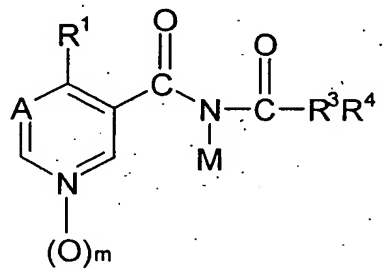
(Ib)

where

R^{11} is (C_1-C_4)-haloalkyl with the exception of CF_3; and

A, R^3, R^4, m have the meanings indicated in claim 1 for formula (I).

8. A compound of the formula (Ic),



(Ic)

in which

M is an organic or inorganic cation; and

A, R^1, R^3, R^4 and m have the meanings indicated in claim 1 for formula (I).

9. A composition for controlling harmful arthropods and helminths, comprising an

effective amount of at least one compound of the formula (Ia), (Ib) or (Ic) as claimed in claim 6, 7 or 8, together with additives or auxiliaries customary for these applications.

10. The composition as claimed in claim 9, comprising at least one further arthropodicidal and/or helminthicidal active compound.

11. The use of a compound as claimed in any of claims 6 to 8 or of a composition as claimed in claim 9 or 10 for controlling harmful arthropods and/or helminths.

12. A method for controlling harmful arthropods and/or helminths, where the pests are brought directly or indirectly into contact with a compound as claimed in any of claims 6 to 8 or with a composition as claimed in claim 9 or 10.

13. Seed material coated with or comprising an arthropodicidally and/or helminthicidally effective amount of a compound as claimed in any of claims 6 to 8 or of a composition as claimed in claim 9 or 10.

14. The use of a compound as claimed in any of claims 6 to 8 for producing a veterinary medicinal product.